

SHAFT PARTS FOR MACHINE STRUCTURAL USE EXCELLENT IN TORSIONAL FATIGUE STRENGTH

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Abstract of JP 8053714 (A)

PURPOSE: To produce shaft parts for machine structural use excellent in torsional fatigue strength by subjecting shaft parts for machine structural use having a specified compsn. to forming, thereafter executing induction hardening and satisfying specified conditions. **CONSTITUTION:** Shaft parts for machine structural use with a prescribed shape constituted of a steel stock contg., by mass, 0.30 to 0.60% C, 0.05 to 1.0% Si, 0.3 to 2.0% Mn, 0.015 to 0.05% Al, 0 to 0.03% S, 0 to 0.015% P, and the balance Fe with inevitable impurities is subjected to forming. Next, this shaft parts are subjected to induction hardening of <math>f=100\text{KHz}</math> frequency, and the ratio (CD/R) of the depth of the hardened layer CD to 50% martensitic hardness to the radius R of the induction-hardened shaft parts is regulated to 0.3 to 0.7.; Furthermore, the value of A prescribed by the formula I is allowed to satisfy every of the inequalities II to IV. Thus, the shaft parts for machine structural use exceedingly improved in torsional fatigue properties can be obtnd.

$$A = \left[\left(\tau f \times (CD/R) \right) / (H_f - H_c) \right] \times 1000$$

C : 0. 3~0. 4%未満においては、1. 9≤A≤1. 6. 6

I

C : 0. 4~0. 6%未満においては、1. 8≤A≤1. 4. 3

II

C : 0. 5~0. 6%未満においては、1. 7≤A≤1. 3. 6

III

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